



6712-01

FEDERAL COMMUNICATIONS COMMISSION

47 CFR Parts 2 and 25

[IB Docket No. 12-376; FCC 14-45]

Commission's Rules Governing the Use of Earth Stations Aboard Aircraft Communicating with Fixed-Satellite Service Geostationary-Orbit Space Stations Operating in the Ku-Bands

AGENCY: Federal Communications Commission.

ACTION: Final rule.

SUMMARY: In this document, the Federal Communications Commission (Commission) promotes regulatory parity for Earth Stations Aboard Aircraft (ESAA) by adopting a primary allocation for ESAA in the 14.0-14.5 GHz band. The Commission also provides regulatory certainty by clarifying some of the ESAA rules.

DATES: Effective [INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER].

FOR FURTHER INFORMATION: Jennifer Balatan or Howard Griboff, Policy Division, International Bureau, (202) 418-1460.

SUPPLEMENTARY INFORMATION: This is a summary of the Commission's Second Report and Order and Order on Reconsideration (Second R&O and Recon Order), FCC 14-45, adopted on April 17, 2014, and released on April 18, 2014. The full text of this document is available for inspection and copying during normal business hours in the Commission Reference Center, 445 12th Street, SW, Washington, DC 20554. The document is also available for download over the Internet at

http://transition.fcc.gov/Daily_Releases/Daily_Business/2014/db0418/FCC-14-45A1.pdf. The complete text may also be purchased from the Commission's copy contractor, Best Copy and

Printing, in person at 445 12th Street, SW, Room CY-B402, Washington, DC 20554, via telephone at (202) 488-5300, via facsimile at (202) 488-5563, or via e-mail at Commission@bcpiweb.com.

Summary

1. On June 30, 2009, the Commission adopted the ESAA Notice of Proposed Rulemaking and Report and Order in IB Docket No. 07-101 (ESAA NPRM & Order), 78 FR 14920-01, March 8, 2013, (Final Rule), as amended at 78 FR 67309-01, November 12, 2013, and 78 FR 14952-01 (Notice), March 8, 2013, as amended at 78 FR 19172-01, March 29, 2013, establishing licensing and service rules for ESAA operating in the 14.0-14.5 GHz/11.7-12.2 GHz (Ku-band) frequencies. In the Second R&O and Recon Order, the Commission elevates ESAA from secondary status to primary status in the 14.0-14.5 GHz band and, as a result, modifies Non-governmental footnote NG55 in the U.S. Table of Frequency Allocations. The Second R&O and Recon Order also addresses several issues raised by a Petition for Reconsideration and Clarification filed by The Boeing Company (Boeing) with respect to discrete portions of the ESAA rules adopted in the ESAA NPRM & Order. First, the Second R&O and Recon Order clarifies the language in §§ 25.103 and 25.227(a)(14) to make clear that the Commission licenses ESAA terminals on all U.S.-registered civil aircraft regardless of whether that aircraft is operating within or outside of U.S. territory. The Second R&O and Recon Order also clarifies § 25.227(b)(3)(i) to more closely reflect the language in the ESAA NPRM & Order and in § 25.222(b)(3)(ii) of the rules for Earth Stations on Vessels. Further, the Second R&O and Recon Order clarifies the meaning of sigma in § 25.227(b)(1)(iii)(A), which sets forth the licensing requirement for demonstrating compliance with antenna pointing error limitations.

Final Regulatory Flexibility Analysis

2. The Regulatory Flexibility Act of 1980, as amended (RFA), requires that a regulatory flexibility analysis be prepared for notice-and-comment rule making proceedings, unless the agency certifies that “the rule will not, if promulgated, have a significant economic impact on a substantial number of small entities.” The RFA generally defines the term “small entity” as having the same meaning as the terms “small business,” “small organization,” and “small governmental jurisdiction.” In addition, the term “small business” has the same meaning as the term “small business concern” under the Small Business Act. A “small business concern” is one which: (1) is independently owned and operated; (2) is not dominant in its field of operation; and (3) satisfies any additional criteria established by the U.S. Small Business Administration (SBA).

3. In light of the rules adopted in the Second R&O and Recon Order, we find that there are only two categories of licensees that would be affected by the new rules. These categories of licensees are Satellite Telecommunications and Fixed-Satellite Transmit/Receive Earth Stations. The SBA has determined that the small business size standard for Satellite Telecommunications is a business that has \$30 million or less in average annual receipts. Commission records reveal that there are 20 space station licensees and operators in the Ku-band. We do not request or collect annual revenue information concerning such licensees and operators, and thus are unable to estimate the number of geostationary space station licensees and operators that would constitute a small business under the SBA definition cited above, or apply any rules providing special consideration for geostationary space station licensees and operators that are small businesses. Currently there are approximately 2,879 operational fixed-satellite transmit/receive earth stations authorized for use in the Ku-band. The Commission does not request or collect annual revenue information, and thus is unable to estimate the number of

earth stations that would constitute a small business under the SBA definition. Of the two classifications of licensees, we estimate that approximately six (6) entities will provide ESAA service. For the reasons described below, we certify that the clarification to the rules adopted in the Second R&O and Recon Order will not have a significant economic impact on a substantial number of small entities.

4. In the ESAA NPRM & Order, the Commission tentatively concluded that ESAA should be authorized on a primary basis in the 14.0-14.5 GHz uplink band, noting that several parties had argued that regulatory parity calls for ESAA to be primary, just like ESV and VMES are primary in that band. The Commission proposed to revise footnote NG55 which would grant primary status to ESAA in the 14.0-14.5 GHz band, and, as an administrative matter, combine ESV, VMES and ESAA into the same footnote as applications of the FSS with primary status in the 11.7-12.2 GHz and 14.0-14.5 GHz bands.

5. In the Second R&O and Recon Order, the Commission adopted its tentative conclusion to grant primary status to ESAA operators in the 14.0-14.5 GHz band. The Commission also made a minor administrative change to § 25.227(b)(2)(i) of the Commission's rules by replacing the word "receive" with the word "create" in that rule, acknowledging that the term "receive" was incorrectly put into the rule originally. The Commission does not expect a substantial number of small entities to incur significant costs associated with the changes adopted in this Second R&O and Recon Order. The change from secondary status to primary status in the 14.0-14.5 GHz band will benefit both large and small entities by allowing greater regulatory certainty in providing ESAA service. In addition, the administrative change to § 25.227(b)(2)(i) is a "clean-up" change involving no substantive decision of significance to small business or the industry in general. Overall, we believe these changes do not impose a significant economic impact on small entities. Therefore, we certify that the requirements

adopted in the Second R&O and Recon Order will not have a significant economic impact on a substantial number of small entities.

6. The ESAA NPRM & Order established service and licensing rules for ESAA operations based on the rules adopted for VSAT networks as well as ESV and VMES networks, noting that authorizing ESAA operations in the FSS Ku-band presented many technical issues that are similar to authorizing the ESV and VMES operations in that band. ESAA terminals communicate with FSS GSO space stations operating in the extended Ku-band (10.95-11.2 GHz and 11.45-11.7 GHz bands) and conventional Ku-band (11.7-12.2 GHz and 14.0-14.5 GHz bands). As part of the ESAA service rules, the Commission adopted technical measures to protect other radio services in the Ku-band, including the FSS and FS (in the extended Ku-band), from harmful interference. The Commission also adopted a regulatory framework for ESAA systems on U.S.-registered aircraft operating in or near foreign nations and over international waters and non-U.S.-registered aircraft operating in U.S. airspace.

7. The Commission does not expect small entities to incur significant costs associated with the changes adopted in the Second R&O and Recon Order. The changes will benefit both large and small entities by allowing greater regulatory certainty in providing ESAA service. We believe these changes are nominal and do not impose a significant economic impact on small entities. Therefore, we certify that the requirements adopted in the Second R&O and Recon Order will not have a significant economic impact on a substantial number of small entities.

Paperwork Reduction Act of 1995 Analysis

8. The Second R&O and Recon Order does not contain new or modified information collection requirements subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104-13. In addition, therefore, it does not contain any new or modified information collection burden for small business concerns with fewer than 25 employees, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198, see 44 U.S.C. 3506(c)(4). The Commission will send a copy of this Second R&O and Recon Order to Congress and the Government Accountability Office pursuant to the Congressional Review Act, see 5 U.S.C. 801(a)(1)(A).

Ordering Clauses

9. IT IS ORDERED that, pursuant to sections 4(i), 7, 302, 303(c), 303(e), 303(f) and 303(r) of the Communications Act of 1934, as amended, 47 U.S.C. 154(i), 157, 302a, 303(c), 303(e), 303(f) and 303(r), the Second Report and Order and Order on Reconsideration IS ADOPTED. Part 25 of the Commission's rules IS AMENDED **[INSERT DATE 30 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]**.

10. IT IS FURTHER ORDERED that the Petition for Reconsideration filed by The Boeing Company IS GRANTED IN PART to the extent described above and IS DENIED in all other respects.

11. IT IS FURTHER ORDERED that the Final Regulatory Flexibility Certifications, as required by section 604 of the Regulatory Flexibility Act, ARE ADOPTED.

12. IT IS FURTHER ORDERED that the Commission's Consumer and Governmental Affairs Bureau, Reference Information Center, SHALL SEND a copy of the Second Report and Order and Order on Reconsideration including the Final Regulatory Flexibility Certifications, to the Chief Counsel for Advocacy of the Small Business Administration.

FEDERAL COMMUNICATIONS COMMISSION.

Marlene H. Dortch,
Secretary.

For the reasons discussed in the preamble, the Federal Communications Commission amends 47 CFR parts 2 and 25 as follows:

**PART 2 – FREQUENCY ALLOCATIONS AND RADIO TREATY MATTERS;
GENERAL RULES AND REGULATIONS**

1. The authority citation for part 2 continues to read as follows:

Authority: 47 U.S.C. 154, 302a, 303, and 336, unless otherwise noted.

2. Amend § 2.106, the Table of Frequency Allocations, as follows:

a. Revise pages 47 and 49.

b. In the list of “Non-Federal Government (NG) Footnotes,” revise footnote NG55 and remove footnotes NG54, NG183 and NG187.

The revisions read as follows:

§ 2.106 Table of Frequency Allocations.

* * * * *

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
10-10.45 FIXED MOBILE RADIOLOCATION Amateur 5.479	10-10.45 RADIOLOCATION Amateur 5.479 5.480	10-10.45 FIXED MOBILE RADIOLOCATION Amateur 5.479	10-10.5 RADIOLOCATION US108 G32 5.479 US128	10-10.45 Amateur Radiolocation US108 5.479 US128 NG50	Private Land Mobile (90) Amateur Radio (97)
10.45-10.5 RADIOLOCATION Amateur Amateur-satellite 5.481				10.45-10.5 Amateur Amateur-satellite Radiolocation US108 US128 NG50	
10.5-10.55 FIXED MOBILE Radiolocation	10.5-10.55 FIXED MOBILE RADIOLOCATION		10.5-10.55 RADIOLOCATION US59		Private Land Mobile (90)
10.55-10.6 FIXED MOBILE except aeronautical mobile Radiolocation			10.55-10.6	10.55-10.6 FIXED	Fixed Microwave (101)
10.6-10.68 EARTH EXPLORATION-SATELLITE (passive) FIXED MOBILE except aeronautical mobile RADIO ASTRONOMY SPACE RESEARCH (passive) Radiolocation 5.149 5.482 5.482A			10.6-10.68 EARTH EXPLORATION-SATELLITE (passive) SPACE RESEARCH (passive) US130 US131 US265	10.6-10.68 EARTH EXPLORATION-SATELLITE (passive) FIXED US265 SPACE RESEARCH (passive) US130 US131	
10.68-10.7 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY SPACE RESEARCH (passive) 5.340 5.483			10.68-10.7 EARTH EXPLORATION-SATELLITE (passive) RADIO ASTRONOMY US74 SPACE RESEARCH (passive) US131 US246		
10.7-11.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A (Earth-to-space) 5.484 MOBILE except aeronautical mobile	10.7-11.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 5.484A MOBILE except aeronautical mobile		10.7-11.7 US131 US211	10.7-11.7 FIXED FIXED-SATELLITE (space-to-Earth) 5.441 US131 US211 NG52	Satellite Communications (25) Fixed Microwave (101)
11.7-12.5 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.492	11.7-12.1 FIXED 5.486 FIXED-SATELLITE (space-to-Earth) 5.484A 5.488 Mobile except aeronautical mobile 5.485 12.1-12.2 FIXED-SATELLITE (space-to-Earth) 5.484A 5.488 5.485 5.489	11.7-12.2 FIXED MOBILE except aeronautical mobile BROADCASTING BROADCASTING-SATELLITE 5.492 5.487 5.487A	11.7-12.2	11.7-12.2 FIXED-SATELLITE (space-to-Earth) 5.485 5.488 NG55 NG143	Satellite Communications (25)

International Table			United States Table		FCC Rule Part(s)
Region 1 Table	Region 2 Table	Region 3 Table	Federal Table	Non-Federal Table	
14-14.25 FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.504C 5.506A Space research			14-14.2 Space research US133	14-14.2 FIXED-SATELLITE (Earth-to-space) NG55 Mobile-satellite (Earth-to-space) Space research US133	Satellite Communications (25)
5.504A 5.505 14.25-14.3 FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B RADIONAVIGATION 5.504 Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.508A Space research 5.504A 5.505 5.508			14.2-14.4	14.2-14.47 FIXED-SATELLITE (Earth-to-space) NG55 Mobile-satellite (Earth-to-space)	
14.3-14.4 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radionavigation-satellite 5.504A	14.3-14.4 FIXED-SATELLITE (Earth-to-space) 5.457A 5.484A 5.506 5.506B Mobile-satellite (Earth-to-space) 5.506A Radionavigation-satellite 5.504A				
14.4-14.47 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Space research (space-to-Earth) 5.504A			14.4-14.47 Fixed Mobile		
14.47-14.5 FIXED FIXED-SATELLITE (Earth-to-space) 5.457A 5.457B 5.484A 5.506 5.506B MOBILE except aeronautical mobile Mobile-satellite (Earth-to-space) 5.504B 5.506A 5.509A Radio astronomy 5.149 5.504A			14.47-14.5 Fixed Mobile US133 US203 US342	14.47-14.5 FIXED-SATELLITE (Earth-to-space) NG55 Mobile-satellite (Earth-to-space) US133 US203 US342	
14.5-14.8 FIXED FIXED-SATELLITE (Earth-to-space) 5.510 MOBILE Space research			14.5-14.7145 FIXED Mobile Space research 14.7145-14.8 MOBILE Fixed Space research	14.5-14.8	
14.8-15.35 FIXED MOBILE Space research			14.8-15.1365 MOBILE SPACE RESEARCH Fixed US310	14.8-15.1365 US310	

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NON-FEDERAL GOVERNMENT (NG) FOOTNOTES

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NG55 In the bands 11.7-12.2 GHz (space-to-Earth) and 14.0-14.5 GHz (Earth-to-space), Earth Stations on Vessels (ESV), Vehicle-Mounted Earth Stations (VMES), and Earth Stations Aboard Aircraft (ESAA) as regulated under 47 CFR part 25 are applications of the fixed-satellite service and may be authorized to communicate with geostationary satellites in the fixed-satellite service on a primary basis.

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PART 25 – SATELLITE COMMUNICATIONS

3. The authority citation for part 25 continues to read as follows:

Authority: Interprets or applies sections 4, 301, 302, 303, 307, 309, 319, 332, 705 and 721 of the Communications Act as amended, 47 U.S.C. 154, 301, 302, 303, 307, 309, 319, 332, 605 and 721, unless otherwise noted.

4. Amend § 25.103 by revising the definition of “Earth Stations Aboard Aircraft (ESAA)” to read as follows:

§ 25.103 Definitions.

* * * * *

Earth Stations Aboard Aircraft (ESAA). Earth stations operating aboard aircraft that receive from and transmit to geostationary-orbit Fixed-Satellite Service space stations pursuant to the requirements in § 25.227.

* * * * *

5. Amend § 25.227 by revising paragraphs (a)(14), (b)(1)(iii)(A), (b)(2)(i), and the second to last sentence of paragraph (b)(3)(i) to read as follows:

§ 25.227 Blanket Licensing provisions for Earth Stations Aboard Aircraft (ESAAs) receiving in the 10.95-11.2 GHz (space-to-Earth), 11.45-11.7 GHz (space-to-Earth), and 11.7-12.2 GHz (space-to-Earth) frequency bands and transmitting in the 14.0-14.5 GHz (Earth-to-space) frequency band, operating with Geostationary Satellites in the Fixed-Satellite Service

(a) * * *

(14) All ESAA terminals operated in U.S. airspace, whether on U.S.-registered civil aircraft or non-U.S.-registered civil aircraft, must be licensed by the Commission. All ESAA terminals on U.S.-registered civil aircraft operating outside of U.S. airspace must be licensed by the Commission, except as provided by section 303(t) of the Communications Act.

* * * * *

(b) * * *

(1) * * *

(iii) * * *

(A) Demonstrate that the total tracking error budget of their antenna is within 0.2° or less between the orbital location of the target satellite and the axis of the main lobe of the ESAA antenna. As part of the engineering analysis, the ESAA applicant must show that the antenna pointing error is within three sigma (σ) from the mean value, i.e., that there is a 0.997 probability the antenna maintains a pointing error within 0.2°; and

* * * * *

(2) * * *

(i) A statement from the target satellite operator certifying that the proposed operation of the ESAA has the potential to create harmful interference to satellite networks adjacent to the target satellite(s) that may be unacceptable.

* * * * *

(3) * * *

(i) * * * The ESAA applicant also shall provide a detailed showing that one or more transmitters are capable of automatically ceasing or reducing emissions within 100 milliseconds of receiving a command from the system's network control and monitoring center that the aggregate off-axis EIRP spectral-densities of the transmitter or transmitters exceed the off-axis EIRP-density limits specified in paragraph (a)(3)(i) of this section. * * *

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